A Meta Analysis of Response Rates to Contingent-Valuation Studies Conducted by Mail

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A Report to the Rocky Mountain Research Station

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Abstract: The reliability of Contingent Valuation (CV) surveys conducted by mail may be compromised by low response rates and self-selection bias. Determining the factors that affect response rates may aid researchers in conducting CV studies that are more reliable. A meta-analysis of CV studies was conducted to determine those factors affecting response rates, both those that are in the control of researchers and those that are not. Some of these factors are common to all survey research conducted by mail (sponsorship, population type surveyed, follow-up, etc.) while others are specific to contingent valuation research (resource valued, level of provision, elicitation method, substitutes, payment vehicle, etc.). Results of the meta-analysis suggest that response rates for many CV mail surveys are already quite high and, in cases where that is not so, limited strategies exist for increasing response rates and hence the reliability of valuation efforts.

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Introduction

The (NOAA) Panel on Contingent Valuations (1993) Act contested the reliability of value estimates obtained from mail surveys on the basis of low response rates for mail surveys. Based on the need to provide extensive information to respondents, the Panel concluded that a "CV study should be conducted with personal interviews" (p. 4607). This recommendation is based on at least two considerations. The first is that an interviewer can help respondents understand the complex information in a contingent-valuation survey and perhaps reduce errors in response. The second is a concern that low response rates to mail surveys can lead to sample-selection. Both of these issues can introduce bias and reduce the efficiency of welfare estimates.

Edwards and Anderson (1987) examined the magnitude of sample related biases in a contingent-valuation (CV) survey, including non-response, and found respondents and non-respondents differed in both their current and projected levels of recreational use. They suggest that benefit estimates based on characteristics of respondents will be larger than those based on characteristics of non-respondents. This means that people who care about the item being valued may be more likely to respond to a CV they receive in the mail than those who are not interested in the topic. With personal interviews, respondents are committed to the interview when they learn about the specific item being valued and may be less likely to terminate the interview than they would be to return a mail survey.

Dillman's (1978) Total Design Method for mail surveys includes standards against which individual studies may be evaluated. Dillman asserts that properly designed surveys should achieve a response rate of 65%. Meta-analyses of response rates to mail surveys (Eichner and Habermehl 1981, Goyder 1982, Heberlein and Baumgartner 1978) have demonstrated that survey design features do, in fact, have statistically significant effects on response rates.

In this study we conduct a meta analysis of response rates to mail surveys conducted by mail. Variables used to explain response rates include characteristics of questionnaires that survey researchers have found to affect response rates and characteristics of the CV exercise itself. We also consider whether the variables are under the control of the investigator (investigator design choices) or are not under investigator control (parameters of the valuation application). If response rates to CV surveys are affected by characteristics of the questionnaire that are not under control of the investigator (such as the resource being valued), this concurs with the NOAA panel's conclusions. If design features that are under control of the investigator affect response then the design of the questionnaire can be modified to enhance response rates.

Meta-analysis

Heberlein and Baumgartner (1978) investigated response rates using a sample of 98 mail surveys. Of the 71 survey characteristics they initially coded, their final statistical model contained 10 survey characteristics that significantly affected response rates: investigator had market research background, government organization sponsoring survey, general population survey, salient topic, length of survey (pages), number of follow-up mailing, monetary incentives in first survey contact, and special third contact

of nonrespondents. No effects were found for use of a personally typed address on envelopes, use of procedures to assure anonymity, pre-notification of survey, and postage type on initial mailings. Their model was replicated by Eichner and Habermehl (1981) and by Goyder (1982).[1] Brown, Decker and Connelley (1989) used the general approach to investigate response rates to resource-based recreation surveys conducted by mail.

Goyder (1982) used a sample of 145 surveys and found similar effects for government sponsored surveys, length of the questionnaire (pages), monetary incentive on the first contact, and special third contact. He found smaller magnitudes of effects for market research background, employee population, and general population. Goyder attributed these discrepancies to instances where subjective coding decisions were necessary. For example, Goyder coded one variable for general population, school or army population, and employee population, whereas Heberlein and Baumgartner coded two variables, one for general population and school and army populations and one for employee population. Similarly, market research background and government organization were treated as two separate variables by Heberlein and Baumgartner, but as one variable by Goyder.

Bruvold and Comer (1988) built on previous regression meta-analyses by increasing the number of survey features considered, improving the statistical techniques used to estimate the model, and using a validation procedure. There were 20 categories containing a total of 50 survey features in their meta-analysis model. Expected effects were shown for sponsorship, type of population surveyed, salience, follow-ups, incentives and postage. Additional significant effects include subject matter of survey, type of data requested, nature of data requested, and year survey was conducted. Bruvold

[1] The Eichres & Habernehl study was conducted using mail surveys conducted in Germany, not the U.S.

and Comer's model explained 68 percent of the variance in response rates, compared to 36 percent for Heberlein and Baumgartner's model.

Using a sample of 38 surveys on recreation topics designed and conducted by their research group, Brown, Decker and Connelly (1988) conducted a meta-analysis of response rates to mail surveys on resource-based recreation topics. Their model showed significant effects on response rates for saliency, type of population surveyed, number of pages, length of hypothetical questions, month of first mailing and the height of type used in the survey.

In this study a similar approach is used to analyze response rates to CV surveys administered by mail. There are three key differences:

- We were unable to duplicate all variables survey researchers investigated as some general survey design features were not consistently reported by CV practitioners.
- We added variables that describe the CV exercise in the survey instrument.
- We did not use the saliency variables. Prior researchers have examined studies to determine if the topic of the survey was salient to respondents.

We had two concerns with the saliency variables. The first was that the expost analysis of saliency results in an endogenous variable being used as a regressor. Second, saliency is a multifaceted concept and we felt it was more appropriate to include variables in the equation that objectively reflect these various components of saliency, e.g., whether water quality was being valued, whether use values were being estimated, etc.

General Model

The model estimated in this study was response rate as a function of general survey features and features of the survey that are unique to the CV exercise.

Three basic models were estimated. The first was a modification of Heberlein and Baumgartner's model. A second model augmented the first model with additional general survey features identified by Goyder, Bruvold and Conner, and others. A third model added the features unique to CV surveys.

The general model is:

$$\text{Ln}\left((1 - P_j)/P_j \right) = \beta X_j + e_j \qquad (1)$$

Where P_j is the survey response rate, β is a vector of parameters to be estimated X_j is a vector of survey characteristics, and e_j is the random econometric error. A log odds model is estimated to constrain probability to the <0, 1> interval. Assuming that each of the observations is independent, e_j will be normally distributed with mean zero and variance:

$$V_i = n_i / r_i (n_i - r_i) \qquad (2)$$

The error term will therefore be heteroskedastic, since the variance in each study is a function of sample size (n_i) and varies with the number of responses (r_i), and Weighted Least Squares (WLS) is used to estimate the model, where each observation is multiplied by:

$$1/\sqrt{V_i} \qquad (3)$$

The marginal effect or response rates from the change in any single survey characteristic is expressed as:

$$\partial P/\partial X_j = -\beta e^{\beta X} / (1+e^{\beta X})^2 . \qquad (4)$$

Data

The initial population of CV studies for this research was taken from citations in *A Bibliography of Contingent Valuation Studies and Papers* (Carson et. al. 1994). This bibliography contains a listing of 1672 published journal articles, chapters in books, masters and doctoral theses, unpublished papers, papers presented at conferences, and government reports. For purposes of this research, only CV studies conducted in the United States after 1975 were used from the bibliography.

A search of private collections of CV literature resulted in the collection of many of the studies cited in the bibliography and the addition of additional studies, primarily consisting of unpublished papers, presented papers, forthcoming papers, and university reports. Authors publications not found in these private collections were contacted via telephone to collect as many of the publications as possible. An initial sample of 124 usable unique studies conducted by mail was obtained. Each study was coded for variables relevant to general mail surveys and those relevant to contingent valuation. In this application, each CV study was treated generally as a single observation; studies drawing upon independent sub-populations, provided one observation for each unique subpopulation.

The success rate in identifying survey characteristics varied across the studies, with higher success in finding consistent, relevant information from theses and reports than from journal articles, unpublished papers, and staff papers. After running frequencies and preliminary models on the data from publications, it was obvious that missing data were a serious problem. Although missing data problems persisted for all variables in the analysis the variables with the highest frequency of missing data included use of incentives. Subjective coding decisions were necessary, thus values for variables related to incentives were always set to zero and never excluded when missing. Amount of incentive was found to have a significant amount of missing data, twice that of monetary and non-monetary incentive. Consequently, monetary and non-monetary incentives were used as the relevant variables among the variables indicating incentive. A survey of authors/principal investigators was undertaken to collect data not found in the available publications and to provide a double check on the data previously coded from publication sources. This survey also yielded additional studies not included in the original sample. The final sample size was 146 studies containing a total of 188 observations, once studies drawing on independent subpopulations were treated as multiple observations.

Three groups of survey features are evaluated, including: variables included in Heberlein and Baumgartner's equation, additional general survey research features, and survey features unique to CV studies.

Coding differences and model estimation differences yielded a modified replication of Heberlein and Baumgartner's model. Two survey features in Heberlein and Baumgartner's model are not relevant in the CV setting. These are market research

background and employee, school or army population. In addition as noted above, the three point saliency scale used by Heberlein and Baumgartner was not coded for the CV surveys.

The review of general survey response rate literature indicated several features relevant to include in a model of general survey response rates that had not been included in the final Heberlein and Baumgartner model. A second survey research equation is estimated incorporating these features. The additional survey features included: university sponsorship, user population surveyed, pre-test, year survey conducted, bulk class outgoing postage, pre-notification, and personalization.

The review of CV survey design identified features unique to CV surveys to include in the model. Resource valued was collapsed into five categories: water quality, air quality, hunting, angling, and other. Elicitation method was coded into three categories: dichotomous choice, open ended, and dichotomous choice with follow-up. Payment vehicle used in the survey was coded as one of five options. Potential effects of individual investigators, captured through dummy variables, were treated as CV variables. A variable for substitutes was created equal to one if the survey contained information on either the cost of substitutes, quantity availability of substitutes, or the quality availability of substitutes.

Results

Descriptive statistics based on valid numbers (missing excluded) for the variables used in the analysis are presented in Table 1. Missing data were more frequent among general survey research features as researchers reported CV survey features more often. The average response rate across the observations in the analysis is 62 percent, three

percentage points lower than the average response rate for general surveys over 12 pages designed using Dillman's Total Design Method (TDM) (Dillman, 1978). Comparably, the average length across surveys in the sample was 13 pages.

With the exception of certified third mailing and non-monetary incentive (Table 2), all of the variables in the Modified Heberlein and Baumgartner equation are significant, when missing values are set to zero. These variables remained significant when incorporated in the Survey Research Equation. When missing values are excluded in the Modified Heberlein and Baumgartner equation the variables that remain significant are general public population, monetary incentive and total number of contacts. Among the variables added to the Modified Heberlein and Baumgartner equation for the Survey Research equation, user population surveyed, bulk class outgoing postage and total number of contacts were significant.

These two equations were reestimated with the CV variables appended, and four investigator variables (dummy variables to capture potential investigator effects) were included as CV features.

The following groups of equations were modeled: Table 2 shows the Modified Heberlein and Baumgartner equation, Table 3 shows the general survey research equation and Table 4 shows the survey research equation with the appended CV features. General survey research variables that are stable when CV features are added to the analysis include sponsorship, general public population surveyed, bulk class outgoing postage and total number of contacts. CV features found to significantly influence response rates included investigator dummy variables, resource valued-water quality, resource valued-

hunting, resource valued-angling, elicitation method-dichotomous choice open ended, and payment vehicle - cost of living.

Across all the models estimated, the effects of excluding missing values was to reduce the number of observations available for estimation, decrease the number of significant coefficients in the model, and increase the R^2 and F Values. These effects are largely a sample size issue. Overall, the variables with the largest significant effects on response rate included general public population, bulk class outgoing postage, the investigator dummy variables, resource valued - water quality, resource valued – hunting and payment vehicle - cost of living.

Conclusions

This research was initiated in response to the National Oceanic and Atmospheric Administrations (NOAA) panel's recommendation to use in-person surveys when implementing the contingent valuation (CV) method. The basis of this recommendation was that the reliability of values obtained from CV surveys conducted by mail is compromised by the potential for low response rates and self-selection bias. This research showed that response rates to CV mail surveys, on average, are already quite high, at 62%. This is slightly below Dillman's (1978) expectation for well-designed mail surveys. To aid researchers in achieving even higher response rates and improved reliability of value estimates, features significantly influencing response rates were empirically identified.

General Survey Research Features

Seven general survey features were found to significantly affect response rates, including sponsorship, type of population, bulk class outgoing postage, monetary incentive, length in pages and total number of contacts for missing values set to zero. When missing values were excluded (with the exception of values for monetary incentive which were set to zero) type of population, bulk class outgoing postage, monetary incentive and total number of contacts remained significant. This research was in concurrence with Dillman's (1978) findings of significance for survey sponsor, bulk class postage and length. Length was found to have a positive effect on response rate while Dillman finds a negative effect. This research did not support Dillman's theory that personalization procedures and follow-ups affect response rates. Other aspects of Dillman's Total Design Method, including question ordering, cover letter message, anonymity, and survey appearance were not examined due to lack of data.

The research concurred with response rate experiments in finding that the type of population surveyed, bulk class postage and monetary incentive significantly influence response, while length has an inconclusive effect on response. This research found that length has a positive effect on response, while the effect expected is in the opposite direction. This may be due to factors such as quality of the survey, longer surveys may be better quality surveys hence eliciting better response rates. However, support was not found for the hypothesis that university sponsored surveys elicit higher response rates than government sponsored surveys, or the hypothesis that use of overall personalization procedures increase response. Additionally, pre-notification did not affect response rates in this analysis, while the response rate experiments indicated an inconclusive effect.

Other features found in the literature on response rate experiments were not examined, including cover letter message, anonymity, survey appearance, and deadline.

Heberlein and Baumgartner's findings of significant effects on response for government organization, general population and monetary incentives were supported by this research, as were their findings of no effect for personalization and pre-notification. Total number of contacts had a significant effect on response in this research which supports Heberlein and Baumgartner's findings for special third contact. However, contrary to Heberlein and Baumgartner, unexpected results were found for length and a significant effect for postage was found.

Contingent Valuation Survey Features

Six CV survey features were found in this research to significantly effect response rates with missing values set to zero. Features that remained significant with missing values excluded include resource valued – hunting and angling. All of these features had a significant positive effect, including: resource valued (hunting, fishing and angling), elicitation method (dichotomous choice) and payment vehicle (cost of living). Resource valued affected the interest respondents have in the survey, increasing their likelihood of completing and returning the survey. This probably captured the salience effects posited by Heberlein and Baumgartner. The significant positive effect for use of dichotomous choice as an elicitation method supports the hypothesis that elicitation methods obtaining discrete indicators of, rather than an actual, willingness-to-pay result in higher response rates because they are simpler for respondents to understand. No hypothesis had previously been formed regarding the use of cost of living as a payment vehicle,

however, this positive effect may be attributable to the perceived realism of cost of living compared to other payment vehicles.

No effect was found for information on substitutes, increased provision and willingness-to-pay or for whether a quantity or a quality change was valued, whether a household or an individual value was elicited, or whether valuation occurred under conditions of certainty or uncertainty. In addition, number of CV questions was not significant in the final CV model.

Implications for CV Surveys Conducted by Mail

Overall, these results indicate that researchers conducting CV surveys by mail need to consider effects of both general and CV survey features on response rates. Features may be generally classified into two categories: those that can be controlled by researchers and those that cannot be controlled by researchers. Survey features that were significant in the estimated models that researchers cannot control include the population surveyed and resource valued.

The majority of survey features found significant in the final CV model can be controlled to some degree by researchers, including government sponsorship, bulk class outgoing postage, total number of contacts, elicitation method and payment vehicle. Among these variables, the largest effect on response rate was found for bulk class outgoing postage. Other variables with large effects on response rate include one of the investigator dummy variables, survey sponsor and payment vehicle - cost of living. Variables not under investigator control with large effects on response rate include resource valued - water quality and hunting. It is important to note that the extent to

which researchers can manipulate other variables, such as willingness-to-pay and information on substitutes, is affected by theoretical survey design considerations.

Despite Dillman's Total Design Method (1978), the premise of the inferiority of mail surveys is still propagated as the NOAA panel report demonstrates the contention being that people may not be provided with enough information or have enough background knowledge to provide valid responses. Rather than dismissing the mail survey method of implementing surveys in favor of in-person surveys, the reliability of values obtained from both methods needs to be addressed. The potential impact of interviewer effects on value estimates in in-person surveys should be explored. For example, research supports that survey respondents require information on how the resource valued would affect their household (Poe and Bishop, 2001). This can be done through in-person surveys. The research presented in this thesis takes a first step toward addressing the reliability of values by identifying features significantly influencing response rates to CV surveys conducted by mail. Researches can apply this knowledge to increase response rates, therefore obtaining more representative samples and making value estimates more representative of the populations surveyed.

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Table 1: Descriptive Statistics for Independent Variables (n = 188)

	Coding	Valid Non-zero	Missing
General Mail Survey Characteristics			
Government Sponsorship	1, 0	14%	33
	1, 0	69%	33
University Sponsorship			
General Public Population	1, 0	42%	2
User Population	1, 0	45%	2
Length in Pages	continuous	mean = 13 range = 2 - 30	20
Total Number of Contacts	continuous	mean = 4 range 1 - 6	17
Certified Third Mailing	1, 0	14%	12
Monetary Incentive	1, 0	24%	83
Non-monetary incentive	1, 0	78%	83
Pretest	1, 0	94%	26
Year Survey Conducted	continuous	mean = 1988 range = 1976 - 1995	5
Bulk Class Outgoing Postage	1, 0	7%	55
Pre-notification	1, 0	43%	11
Personalization	1, 0	33%	47
CV Specific Survey Characteristics			
Investigator One	1, 0	28%	0
Investigator Two	1, 0	3%	0
Investigator Three	1, 0	5%	0
Investigator Four	1, 0	6%	0
Resource Valued - Water Quality	1, 0	12%	0
Resource Valued - Air Quality	1, 0	2%	0
Resource Valued – Hunting	1, 0	16%	0
Resource Valued – Angling	1, 0	15%	0
Total Value	1, 0	36%	0
Nonuse Value	1, 0	2%	1
Increased Provision	1, 0	59%	2
Current Provision	1, 0	49%	1
Quantity	1, 0	74%	1
Willingness-to-Pay	1, 0	95%	2
Elicitation Method - Dichotomous Choice	1, 0	41%	7
Elicitation Method - Open Ended	1, 0	20%	5
Elicitation Method - Dichotomous Choice w/Follow up	1, 0	15%	1
Payment Vehicle - Access Fee	1, 0	4%	4
Payment Vehicle - Tax	1, 0	9%	6
Payment Vehicle - Income	1, 0	11%	4
Payment Vehicle - Cost of Living	1, 0	5%	3
Payment Vehicle - Overall Trip Expenses	1, 0	21%	3
Individual Value	1, 0	69%	0
Estimated Under Certainty	1, 0	80%	1
Information - Substitutes	1, 0	16%	20
Number of CV Questions	1, 0	mean = 3.5 range 1 - 36	13
Circumstances Contributing to Interest	1, 0	24%	1

Table 2. Modified Heberlein and Baumgartner (Probability >T)

Variable	Paramter Estimate (missing excluded)	Parameter Estimate (missing zero)
GOVERNMENT LETTERHEAD SPONSORSHIP	0.20714 (0.2549)	0.37832 (0.0344)
UNIVERSITY LETTERHEAD SPONSORSHIP		
GENERAL PUBLIC POPULATION	-0.78324 (<.0001)	-0.66556 (<.0001)
SURVEYED		
USER POPULATION SURVEYED		
PRETEST		
YEAR SURVEY CONDUCTED 1		
PRENOTIFICATION		
BULK CLASS OUTGOING POSTAGE		
OVERALL PERSONALIZATION		
MONETARY INCENTIVE	0.32213 (0.0802)	0.53354 (0.0014)
NON-MONETARY INCENTIVE	0.13368 (0.2785)	0.1198 (0.3162)
LENGTH IN PAGES	0.01052 (0.3626)	0.02636 (0.0132)
CERTIFIED THIRD MAILING	0.0274 (0.8773)	0.0801 (0.657)
TOTAL NUMBER OF CONTACTS	0.37099 (<.0001)	0.22699 (0.0002)
Adjusted R^2	0.49	0.38
F value	20.14	18.79
N	142	163

Table 3. Survey research equation (Probability >T)		
Variable	Parameter Estimate (Missing excluded)	Parameter Estimate (Missing zero)
GOVERNMENT LETTERHEAD SPONSORSHIP	0.11142 (0.7238)	0.33723 (0.1093)
UNIVERSITY LETTERHEAD SPONSORSHIP	-0.1065 (0.5813)	0.03009 (0.835)
GENERAL PUBLIC POPULATION SURVEYED	-0.39048 (0.0713)	-0.33703 (0.0863)
USER POPULATION SURVEYED	0.53831 (0.0187)	0.38019 (0.0667)
PRETEST	0.09235 (0.7842)	-0.24263 (0.1741)
YEAR SURVEY CONDUCTED 1	0.02072 (0.2869)	0.0032 (0.8382)
PRENOTIFICATION	-0.15903 (0.5107)	0.30665 (0.1099)
BULK CLASS OUTGOING POSTAGE	-0.72036 (0.0064)	-0.70082 (0.007)
OVERALL PERSONALIZATION	0.02505 (0.8861)	0.15899 (0.2672)
MONETARY INCENTIVE	0.36186 (0.1062)	0.60888 (0.0012)
NON-MONETARY INCENTIVE	0.19915 (0.1806)	0.11446 (0.3462)
LENGTH IN PAGES	-0.00118 (0.9327)	0.01915 (0.092)
TOTAL NUMBER OF CONTACTS	0.38071 (0.0006)	0.15444 (0.056)
CERTIFIED THIRD MAILING	0.17449 (0.374)	0.06054 (0.7385)
Adjusted R^2	0.55	0.46
F value	10.84	10.62
N	115	162

Table 4: Contingent Valuation Equations: Parameter Estimate (Probability > T)

	Missing excluded	Missing zero
Variable	Parameter Estimate	Parameter Estimate
GOVERNMENT LETTERHEAD SPONSORSHIP	-0.3404 (0.4738)	0.60031 (0.0157)
UNIVERSITY LETTERHEAD SPONSORSHIP	-0.12985 (0.5502)	-0.0264 (0.8695)
GENERAL PUBLIC POPULATION SURVEYED	-0.3388 (0.2357)	-0.34766 (0.1015)
USER POPULATION SURVEYED	0.30137 (0.3933)	-0.07302 (0.7862)
PRETEST	0.51914 (0.1511)	0.12974 (0.5292)
YEAR SURVEY CONDUCTED 1	-0.00098938 (0.966)	-0.00256 (0.8929)
PRENOTIFICATION	0.14858 (0.6639)	0.30199 (0.2327)
BULK CLASS OUTGOING POSTAGE	-1.15171 (0.0126)	-1.25411 (0.0015)
OVERALL PERSONALIZATION	0.21642 (0.3244)	0.28732 (0.1286)
MONETARY INCENTIVE	0.30838 (0.352)	0.29997 (0.2122)
NON-MONETARY INCENTIVE	-0.19453 (0.2432)	-0.15053 (0.279)
LENGTH IN PAGES	-0.0117 (0.5125)	0.00184 (0.8963)
CERTIFIED THIRD MAILING	0.13691 (0.5973)	-0.07347 (0.7278)
TOTAL NUMBER OF CONTACTS	0.22898 (0.079)	0.07073 (0.4812)
BOYLE	0.01582 (0.9673)	0.73748 (0.0037)
DUFFIELD	1.33778 (0.1021)	-0.10868 (0.7708)
ROWE	-0.20315 (0.6991)	0.52399 (0.1514)
LOOMIS	0.08617 (0.8105)	0.1973 (0.4445)
CIRCUMSTANCES CONTRIBUTING TO INTEREST	0.02735 (0.9037)	0.07817 (0.6455)
WATER QUALITY	0.38293 (0.236)	0.63995 (0.011)
AIR QUALITY	-0.72225 (0.2377)	-0.49941 (0.2744)
HUNTING	0.97556 (0.001)	0.80394 (0.001)
ANGLING	0.56706 (0.0735)	0.41903 (0.077)
INDIVIDUAL VALUE	-0.19666 (0.4166)	-0.04362 (0.7905)
INCREASED PROVISION	0.00323 (0.9889)	-0.212 (0.262)
CURRENT PROVISION	0.14828	0.03692

	(0.5263)	(0.8535)
QUANTITY	-0.05672 (0.8481)	0.11744 (0.5221)
TOTAL VALUE	-0.24408 (0.3257)	-0.24293 (0.2124)
NONUSE VALUE	0.33434 (0.6272)	0.93391 (0.1574)
ESTIMATED UNDER CERTAINTY	-0.02352 (0.9278)	0.10709 (0.5522)
WTP	0.14101 (0.8592)	-0.15245 (0.7232)
DICHOTOMOUS CHOICE	0.15972 (0.4835)	0.31418 (0.0866)
OPEN ENDED	-0.10304 (0.6733)	-0.01272 (0.9507)
DICHOTOMOUS CHOICE WITH FOLLOW-UP	-0.01603 (0.9558)	0.18827 (0.3677)
ACCESS FEE	-0.56711 (0.1631)	-0.30118 (0.3798)
TAX	-0.2162 (0.4937)	-0.14748 (0.5269)
INCOME	0.1761 (0.7573)	0.16909 (0.6047)
COST OF LIVING	0.53715 (0.2415)	0.66607 (0.0508)
OVERALL TRIP EXPENSES	0.10442 (0.769)	-0.23654 (0.3428)
NUMBER OF CV QUESTIONS	0.00418 (0.8114)	0.02069 (0.1995)
SUBSTITUTES	0.18711 (0.484)	0.17359 (0.3921)
Adjusted R^2	0.64	0.59
F value	6.17	6.12
N	109	146